

Application No. 09/606,884

c2 8. (Twice Amended) A battery comprising an anode, a cathode comprising vanadium oxide particles having an average diameter from about 5 nm to about 1000 nm and a binder, and a separator element disposed between the anode and the cathode, wherein the collection of vanadium oxide particles has a distribution in sizes such that at least about 95 percent of the particles have a diameter greater than about 40 percent of the average diameter and less than about 160 percent of the average diameter.

c3* 15. (Twice Amended) A battery comprising an anode, an electrolyte, a cathode and a separator element disposed between the anode and the cathode, the electrolyte comprising lithium ions and the cathode comprising nanoparticles of electroactive material that intercalates lithium ions and a binder, wherein the electroactive material in the cathode exhibits an energy density greater than about 900 Wh/kg during discharge of the battery when discharged from 4 volts to 1.8 volts at 25°C.

c4 20. (Amended) A method of forming a battery, the method comprising incorporating a collection of vanadium oxide particles having an average diameter from about 5 nm to about 1000 nm into a cathode structure, wherein the collection of vanadium oxide particles has a distribution in sizes such that at least about 95 percent of the particles have a diameter greater than about 40 percent of the average diameter and less than about 160 percent of the average diameter.

(Please add new claims 30-52 as follows:)

c5 30. (New) The cathode composition of claim 1 wherein the collection of vanadium oxide particles has an average particle size of no more than about 500 nm.

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31. (New) The cathode composition of claim 1 wherein the collection of vanadium oxide particles has an average particle size of no more than about 400 nm.
32. (New) The cathode composition of claim 1 wherein the collection of vanadium oxide particles has an average particle size of no more than about 300 nm.
33. (New) The cathode composition of claim 1 wherein the collection of vanadium oxide particles has an average particle size of no more than about 200 nm.
34. (New) The battery of claim 8 wherein the collection of vanadium oxide particles has an average particle size of no more than about 500 nm.
35. (New) The battery of claim 8 wherein the collection of vanadium oxide particles has an average particle size of no more than about 400 nm.
36. (New) The battery of claim 8 wherein the collection of vanadium oxide particles has an average particle size of no more than about 300 nm.
37. (New) The battery of claim 8 wherein the collection of vanadium oxide particles has an average particle size of no more than about 200 nm.
38. (New) The battery of claim 15 wherein the collection of vanadium oxide particles has an average particle size of no more than about 500 nm.

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39. (New) The battery of claim 15 wherein the collection of vanadium oxide particles has an average particle size of no more than about 400 nm.

40. (New) The battery of claim 15 wherein the collection of vanadium oxide particles has an average particle size of no more than about 300 nm.

41. (New) The battery of claim 15 wherein the collection of vanadium oxide particles has an average particle size of no more than about 200 nm.

42. (New) The battery of claim 15 wherein the collection of vanadium oxide particles has a distribution in sizes such that at least about 95 percent of the particles have a diameter greater than about 40 percent of the average diameter and less than about 160 percent of the average diameter.

43. (New) The method of claim 20 wherein the collection of vanadium oxide particles has an average particle size of no more than about 500 nm.

44. (New) The method of claim 20 wherein the collection of vanadium oxide particles has an average particle size of no more than about 400 nm.

45. (New) The method of claim 20 wherein the collection of vanadium oxide particles has an average particle size of no more than about 300 nm.

46. (New) The method of claim 20 wherein the collection of vanadium oxide particles has an average particle size of no more than about 200 nm.